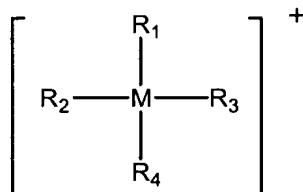


What is claimed is:

1 26. A process for preparing a nanocomposite comprising:
a. preparing an organoclay material by reacting a swellable layered clay with an onium ion represented by Formula (I):



wherein

- (i) M is nitrogen or phosphorus,
- (ii) R₁ is a straight or branched alkyl group having at least 8 carbon atoms,
- (iii) R₂, R₃, and R₄ are independently selected from organic or oligomeric ligands or hydrogen, and
- (iv) at least one of R₂, R₃, and R₄ comprises an alkylene oxide group having from 2 to 6 carbon atoms or a polyalkylene oxide group, and

b. melt mixing the organoclay material with an expanding agent, and
c. melt extruding the expanded organoclay and a polymer to provide a nanocomposite.

2 27. The process of claim 26, wherein the organoclay material contains platelet particles and the expanding agent separates the platelet particles.

3 28. The process of claim 26, wherein R₂, R₃, and R₄ are not hydrogen.

4 29. The process of claim 26, wherein at least one of R₂, R₃, and R₄ is an alkyl group having from 1 to 4 carbon atoms.

5 30. The process of claim 26, wherein R₁ is a straight or branched alkyl group having from 8 to 25 carbon atoms.

6 31. The process of claim 26, wherein the alkylene oxide group is a 2-hydroxyethyl group.

7 32. The process of claim 26, wherein the onium ion is bis(2-hydroxyethyl)octadecyl methyl ammonium, or bis(2-hydroxyethyl) methyl tallow ammonium.

8 33. The process of claim 26, wherein the expanding agent is an oligomer.

9 34. The process of claim 26, wherein the expanding agent is a polymer having a molecular weight from about 250 to about 25,000.

10 35. The process of claim 26, wherein the expanding agent is an oligomeric polyamide.

11 36. The process of claim 26, wherein the polymer is a thermoplastic polymer, a mixture of thermoplastic polymers, a vulcanized resin, or a thermoplastic resin.

12 37. The process of claim 26, wherein the polymer is a polyester.

13 38. The process of claim 26, wherein the organoclay material is incorporated in an amount from about 0.01 to 20% by weight of the mixture.

14 39. The process of claim 26, wherein the polymer is a polyamide.

15 40. The process of claim 26, wherein the polymer and the expanding agent are polyamides.

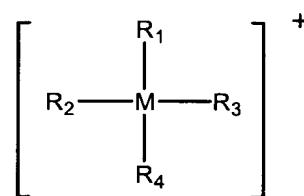
16 41. The process of claim 26, wherein the expanding agent is an oligomer.

17 -42. The process of claim 26, wherein the polymer is a copolyamide or terpolyamide

18 -43. The process of claim 26, wherein the polymer is poly(m-xylene adipamide).

19 -44. A process for preparing a nanocomposite comprising:

- a. preparing an organoclay material by reacting a swellable layered clay with an onium ion represented by Formula (I):



wherein

- (i) M is nitrogen or phosphorus,
- (ii) R_1 is a straight or branched alkyl group having at least 8-25 carbon atoms,
- (iii) R_2 , R_3 , and R_4 are organic ligands, and
- (iv) at least one of R_2 , R_3 , and R_4 is an alkylene oxide group having from 2 to 6 carbon atoms, and

- b. melt mixing the organoclay material with a polyamide oligomer, and
- c. melt extruding the expanded organoclay and a polyamide to provide a nanocomposite.

20 -45. The nanocomposite produced by the process of claim 44.